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REMARKS

Claims 1-18, 20 and 25-35 are pending in the captioned application. Among the pending claims, there are five independent claims: claims 1, 12, 18, 22 and 25.

Claims 12-17 and 35 stand rejected under 35 USC 112.

Claims 1-7, 9, 11, 18, 20 and 25-34 stand rejected under 35 USC 102.

Claims 8, 10 and 31 stand rejected under 35 USC 103.

Claims 1-7, 9, 11, 18, 20 and 25-34 stand rejected under the doctrine of obviousness-type double patenting.

Amendment to the Specification

The Summary of the Invention has been amended to conform to the claims as currently amended.

Comments on Amendments to Claims 1, 8, 9, 10, 12, 25, 31-34

Claim 1 has been amended to remove the extraneous phrase addressing the coefficient of electrical conductivity of the semiconductor material. Claim 7 has been amended to recite that limitation, and claims 8-10 have been amended for purposes of consolidation, resulting in the cancellation of claim 10.

Claim 12 has also been amended to remove the extraneous phrase addressing the coefficient of electrical conductivity of the semiconductor material.

Claim 20 has been canceled in view of the amendment to claim 26.

Claim 25 has been amended to remove the extraneous phrase addressing the coefficient of electrical conductivity of the semiconductor material. Claim 31 has been amended to recite that limitation, and claims 32-34 have been amended to consolidate the limitations previously presented in claims 31-34.

Other aspects of amendments to the claims are discussed elsewhere herein.

Rejection of Claims 12-17 and 35 Under 35 U.S.C. 112

Claims 12-17 and 35 stand rejected under 35 U.S.C. 112, the Examiner alleging that the claims present subject matter which was not described in the specification in an enabling manner.

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Claim 12 requires preconditioned titanium "to be stabilized against temperature-induced variations in resistance," and it is alleged that the specification fails to provide support for this limitation. Incongruously, immediately after alleging a lack of support for claim 12, the Examiner acknowledges the teaching disclosed by the Applicant in the application to achieve the pertinent limitation set forth in claim 12, i.e., preconditioning the igniter device by heating to a temperature of, e.g., about 250°C.

In support of the rejection, the Examiner has created a hypothetical situation in which, due to heating for insufficient preconditioning, inadequate stability is attained. In so doing, however, the Examiner has described a simple method by which one of ordinary skill in the art could determine whether sufficient preconditioning has been attained, i.e., by preconditioning a sample device at a suitable temperature, e.g., 250°C, for the interval x, allowing the igniter device to cool, and then testing the bridge resistance of the sample before and after subsequent heating. If no reduction in the change in resistance before and after subsequent heating is noted relative to a non-preconditioned sample, the preconditioning interval x was inadequate and should be increased.

The Examiner is respectfully reminded that the Applicants were not obliged to disclose the claimed invention in sufficient detail to enable one of skill in the art to practice it wholly without experimentation. Rather, the disclosure is adequate if the invention can be realized by one of ordinary skill in the art without *undue* experimentation. The Applicants clearly teach that by heating to a temperature of 250°C in a preconditioning step, a titanium semiconductor bridge igniter is stabilized against temperature-induced changes in resistance (see page 5, lines 12-17). The Applicants respectfully submit that, in view of this disclosure, one skilled in the art would be able to precondition a titanium semiconductor bridge by exposure to elevated temperature and attain stability against further temperature-induced changes in bridge resistance without undue experimentation. It is respectfully submitted that the Examiner has not provided sufficient evidence to support the rejection based on enablement, i.e., has failed to show that one of ordinary skill in the art, given the disclosure provided by the Applicants, could not attain the claimed invention without undue experimentation. Accordingly, the stated ground of rejection is respectfully traversed.

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Rejection of Claims 1-7, 9, 11, 18, 20 and 25-34 Under 35 U.S.C. 102

Claims 1-7, 9, 11, 18, 20 and 25-34 stand rejected under 35 U.S.C. 102 as being anticipated by PCT Publication WO 9742462 to Martinez-Tovar ("Martinez-Tovar (PCT)"). The Examiner alleges that Martinez-Tovar (PCT) discloses a semiconductor bridge device comprising a layer of semiconductor material consisting essentially of titanium as recited in independent claims 1, 18 and 25.

Regarding claim 1 and claim 18, the Examiner states in sections 2 and 3 of the 'Response to Arguments' portion of the office action that the 'consisting essentially of' language of these claims fails to exclude tungsten from the bridge section of the device because, in the Examiner's view, the exclusion of tungsten is not a basic and novel characteristic of the invention.

Claim 1 has been amended to expressly recite the exclusion of tungsten from the bridge, thus avoiding any issue of interpreting 'consisting essentially of' or other exclusionary language carrying implicit meaning. This claim is now clearly patentably distinguishable from Martinez-Tovar (PCT), which only discloses igniters having tungsten on the bridge section of the semiconductor material together with the titanium. As a result of the foregoing amendment, claim 1 is broader than it was before, since it is now open to all metals on the semiconductor material other than tungsten, whereas the 'consisting essentially of' language excluded tungsten and other metals as well, as previously argued.

Claim 18 has been amended to limit the phrase 'consisting essentially of' to the standard location for such language in a claim. Contrary to the Examiner's assertion that this phrase fails to exclude tungsten from the bridge of the claimed device, the Applicant maintains that the phrase indicates the exclusion of tungsten and some other metals from the bridge section of the semiconductor material, as previously argued. The Examiner is respectfully reminded that in accordance with 35 USC 112, the claims set forth the definition of what the *inventor* regards as the invention. The statute thus mandates that the inventor may specify the exclusionary effect of the 'consisting essentially of' language in a claim by identifying the 'basic and novel characteristic' of the invention; the Examiner is not authorized to disregard or contradict the inventor's assertion in this regard. By refusing to adopt an interpretation of 'consisting essentially of' proffered by the Applicant, the Examiner is failing to address the claimed subject matter. It is the Applicant's prerogative to establish that 'consisting essentially of' language excludes only tungsten and other metals from the bridge section that similarly defeat the reduced energy requirements and/or improved reliability for fir-

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ing realized by omitting tungsten, while leaving the claim open to metals on the bridge section in addition to titanium.

Since Martinez-Tovar (PCT) nowhere teaches that titanium be used without tungsten on the bridge section of the layer of semiconductor material of the igniter, or that energy savings and/or improvement in reliability that would be achieved by omitting the tungsten as taught by the inventors herein, the stated ground of rejection of claim 18 is respectfully traversed.

Regarding claim 25, this claim has been amended to make clear that the 'consisting of titanium' language is not limited to a particular layer of metal on the semiconductor material of the bridge section, but rather pertains to all of the metal on the semiconductor material of the bridge section, thus substantially excluding tungsten (which is required by Martinez-Tovar (PCT)) and all other metals beside titanium. By excluding tungsten from the bridge section, claim 25 is clearly distinguishable from Martinez-Tovar (PCT).

By virtue of claims 1, 18 and 25, all of the rejected claims require the exclusion of tungsten from the metal on the bridge section of the semiconductor material of the claimed semiconductor bridge igniter. Since the use of titanium without tungsten is not seen in Martinez-Tovar (PCT), the stated ground of rejection is respectfully traversed.

If the Examiner finds that the arguments based on the exclusion of tungsten from any of the rejected claims are inconsistent with the scope of the claims as currently amended, he is respectfully requested to telephone the undersigned so that agreement on the scope of the claims consistent with the arguments can be reached by discussion or suitable amendment.

Rejection of Claims 8, 10 and 31 Under 35 U.S.C. 103

Claims 8, 10 and 31 stand rejected under 35 U.S.C. 103 as being unpatentable over Martinez-Tovar (PCT) in view of U.S. Patent 4,976,200 to Benson et al.

Claims 8 and 31 are allowable at least because they depend from base claims that are allowable for reasons set forth herein. Claim 10 has been canceled because it became duplicative in view of the foregoing amendments.

Double Patenting

Claims 1-7, 9, 11, 18, 20 and 25-34 were rejected on the basis of obviousness-type double patenting over claims of U.S. Patent 6,133,146 to Martinez-Tovar ("Martinez-Tovar (US)"). This ground of rejection is respectfully traversed on the grounds that each of the

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claims in Martinez-Tovar (US) require a layer of tungsten on the semiconductor bridge. In contrast, tungsten is excluded from the bridge of independent claims 1, 18 and 25, and therefore from claims 2-7, 9, 11, 20 and 26-34 dependent therefrom, thus patentably distinguishing the claims from those of Martinez-Tovar (US) for reasons discussed above relative to Martinez-Tovar (PCT).

Each of the stated grounds of rejection have been addressed or traversed. Reconsideration and re-examination of the pending claims is respectfully requested.

Respectfully submitted,



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